

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 1-12 were pending. By the present response, claims 1-3 and 12 have been amended, and claims 13-21 have been added. Thus, upon entry of the present response, claims 1-21 are pending and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: page 2, lines 25-30; page 3, lines 1-8; page 4, lines 17-21; page 5, lines 7-12; and the original claims.

Entry of the forgoing is appropriate pursuant to 37 C.F.R. §1.116 for at least the following reasons. First, the amendments clearly overcome the grounds of rejection. Second, the amendments place the application in better form for an appeal.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 1-3, 6, 8-11 and 12 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,519,335 to Krautkremer et al. (hereafter "*Krautkremer et al.*") on the grounds set forth in paragraph 2 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to methods and apparatus for the efficient control for a propulsion system. In conventional control systems and apparatus, the control commands defining the direction of the ship and the speed of the ship, for

example, must be given separately. For example, the ship operator may give the steering command by one control device, like a control stick, but the actual controlling signal of the propulsion device is separate for different types of devices. Thus, for example, control of blade angles with a controllable pitch propeller may be separate from the control of the propeller's rotating speed. The present invention has been developed in an attempt to improve such propulsion system control methods and apparatus. Accordingly, the method performed consistent with the principles of the present invention is set forth in amended claim 1. Amended claim 1 recites:

1. Method for controlling a propulsion drive, which drive comprises at least one first propeller drive which rotates a first propeller in a first direction of rotation, and by which at least one of: the propulsion power and rotating speed of the first propeller is adjusted, and at least one second propeller drive, by which a second propeller is rotated in a second direction of rotation opposite to the first direction of rotation, and adjusted, the first and second propellers arranged longitudinally one after the other, the first and the second propeller drives are essentially separated from each other, wherein the method comprises controlling the propulsion drive by a single control command, whereby a first control signal for controlling the first propeller drive, and a second control signal for controlling the second propeller drive, are generated from the single control command.

An apparatus constructed according to the principles of the present invention is set forth in amended claim 12. Amended claim 12 recites:

12. Apparatus for controlling a propulsion drive, which comprises at least one first propeller drive which rotates a first propeller in a first direction of rotation, and by which at least one of: the propulsion power and the rotating speed is controllable, and at least one second propeller drive, by which a second propeller is rotatable in a second direction of rotation opposite to the first direction of rotation, and controllable, the first and second propeller arranged longitudinally one after the other, the first and the second propeller drive are essentially separated from each other, wherein the apparatus comprises a control device to control the propulsion drive by a single control

command, whereby based on the single control command the control device generates a first control signal, by which the first propeller drive is controllable, and a second control signal, by which the second propulsion drive is controllable.

Krautkremer et al. fails to anticipate either the method or apparatus of claims 1 or 12, respectively.

Krautkremer et al. describes a device for controlling the direction of movement and thrust of a watercraft. The arrangements and techniques described therein include "an input device 50 is provided and includes three input elements 12, 13 and 14 . . ." (column 4, lines 3-5). These separate input elements provide multiple inputs to a microcomputer (18). The microcomputer converts the input signals into digital signals which are then used to calculate the steerable propeller angles (column 4, lines 61-69). The calculated values are then converted back into analog signals and fed to corresponding control devices (19-24).

However, as readily apparent from the above, and from the illustration appearing in Figure 1 therein, nowhere does *Krautkremer et al.* disclose a method which includes generating both a first and a second control signal from a single control command. The multiple outputs produced by the arrangement of *Krautkremer et al.* are derived from separate and plural inputs, as made clear by the following portion of the *Krautkremer et al.* disclosure:

A further very important development of the invention involves the provision of a microcomputer responsive to the input elements. Due to the facts that, for each function of movement, a separate input element is provided which is not influenced by the other input elements. (emphasis added) (column 2, lines 28-33)

It is asserted in the Official Action that the microcomputer (18) of *Krautkremer et al.* is "a single control command." This interpretation of *Krautkremer et al.* is

respectfully traversed. First, the interpretation of a microcomputer as a "control command" is not a reasonable interpretation, even within the context of the examination of claims giving them their "broadest reasonable interpretation." The commands, or inputs (e.g., 12-17) are generated and then fed to the microcomputer according to the teachings of *Krautkremer et al.* As noted above, these inputs, which are plural, are then converted and used to perform calculations which are then embodied in a plurality of outputs (e.g., signals feeding output devices 19-24). However, contrary to the assertions contained in the grounds for rejection, *Krautkremer et al.* fails to disclose any method or arrangement whereby a single control command can be utilized to produce both first and second control signals. Moreover, the microcomputer (18) of *Krautkremer et al.* cannot be reasonably read as encompassing the claimed single control command, contrary to the assertions contained in the grounds for rejection. Thus, for at least the reasons noted above, *Krautkremer et al.* fails to anticipate the method and apparatus of claims 1 and 12, respectively.

In addition, claims 1 and 12 have been amended so as to define a propulsion arrangement including first and second longitudinally arranged counterrotating propellers. *Krautkremer et al.* clearly fails to disclose such an arrangement. Thus, *Krautkremer et al.* also fails to anticipate claims 1 or 12 for at least this additional reason.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 1, 4, 5 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,795,199 to Langenberg et al. (hereafter "*Langenberg et al.*") on the grounds set forth in paragraph 4 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

Langenberg et al. is directed to a propeller drive for watercraft. However, as admitted on page 4 of the Official Action, *Langenberg et al.* fails to disclose any method or apparatus whereby the propulsion drives are controlled by a single control command.

Krautkremer et al. is cited as allegedly providing this teaching thereby satisfying the requirements of the presently claimed invention. However, for at least the reasons explained above, *Krautkremer et al.* fails to provide at least this aspect of the presently claimed invention. Namely, for at least the same reasons noted above, *Krautkremer et al.* fails to disclose a method or apparatus whereby first and second control signals are generated based upon a single control command. In this regard, applicants strongly traverse the assertion that the microprocessor (18) can somehow constitute a "single control command." Therefore, even if the proposed combination were appropriate, the claimed invention would not result.

Reconsideration and withdrawal of the rejection is respectfully requested.

The remaining claims depend either directly or indirectly upon claims 1 or 12. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

NEW CLAIMS

By the present response, claims 13-16 have been added. Claims 13-16 depend from either claim 1 or 12. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

By the present response, newly presented independent claim 17 has also been added. Claim 17 is directed to an arrangement which requires, *inter alia*, a main control unit constructed and arranged to receive a single control command, and based on the single control command, produce and transmit both a first control signal to a first control unit and a second control signal to a second control unit, thereby affecting both a first operational parameter and a second operational parameter, wherein the first operational parameter differs from the second operational parameter. It is respectfully submitted that neither *Krautkremer et al.* nor *Langenberg et al.* disclose or even suggest an arrangement which includes at least this aspect of newly presented claim 17.

By the present response, claims 18-21 have also been added. Claims 18-21 depend from claim 17. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

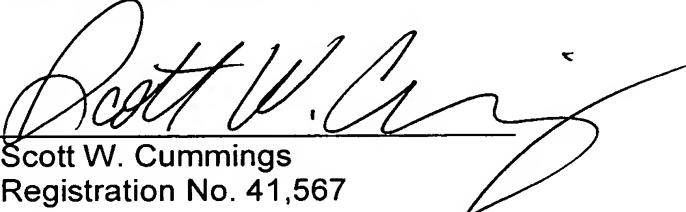
CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: April 30, 2008

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